

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Paragraph bridging pages 2 and 3, please substitute the following paragraph:

Presumably, the change in stress results from very slight mixing at an interface between respective layers forming the multilayer reflection film. Such change is of a level which can not be detected by measurement of a period length by the X-ray diffraction analysis but causes the peak wavelength of the reflectance of the multilayer reflection film (i.e., the wavelength at which the reflectance of the multilayer reflection film has a peak value (maximum value)) to be changed by the a level of 0.01 nm. Since the EUV light has a very short wavelength, the a change in state of the multilayer reflection film very sensitively affects the wavelength characteristic and the reflection characteristic thereof.

First full paragraph on page 3, please substitute the following paragraph:

In the EUV lithography, the light in a specific narrow wavelength band is used so that the influence of wavelength shift is great. The shift in peak wavelength of the reflectance causes mismatching with a mirror of the exposure apparatus used upon pattern transfer. Therefore, the peak wavelength must accurately be controlled. Furthermore, the shift in peak wavelength causes the decrease in reflectance of the multilayer reflection film. Thus, the change with time in stress of the multilayer reflection film poses various problems in practical use of the mask, for example, ~~causes the~~ causing a change in flatness of a substrate.

Fourth full paragraph on page 3, please substitute the following paragraph:

With respect to the above-mentioned object, the present inventor earnestly studied the problems and sought their solutions. As a result, it has been found out that, by heat-treating a multilayer reflection film formed on a substrate, the change with time in stress of the multilayer reflection film can be suppressed without causing the decrease in reflectance of the multilayer reflection film.

Paragraph bridging pages 4 and 5, please substitute the following paragraph:

In this invention, a substrate heating temperature in the above-mentioned heat treatment is preferably not lower than 50°C and not higher than a baking temperature of the resist film. This is because, in a production process of the reflection type mask blank, the heat treatment at a high temperature higher than the baking temperature of the resist film results in decrease in reflectance of the multilayer reflection film and substantial shift in peak wavelength. Furthermore, in order to achieve the effect of sufficiently suppressing the change with time in stress, the heat treatment at a temperature not lower than a predetermined level (not lower than 50°C) is required. The temperature is preferably not lower than 50°C and not higher than 135°C, more preferably not lower than 50°C and not higher than 100°C, and most more preferably not lower than 60°C and not higher than 100°C.

Second full paragraph on page 15, please substitute the following paragraph:

As described above, in the methods of producing a reflection type mask blank and a reflection type mask in this invention, the multilayer reflection film is subjected to the a predetermined heat treatment so that the a reflection type mask blank and the a reflection type mask are obtained which are over time have suppressed in changes with time in stress of the multilayer reflection film due to thermal factors and are therefore prevented from the changes in performance with time, such as the shift in peak wavelength of the reflectance and the decrease in reflectance and which can stably be used in practical use.

Fourth full paragraph on page 22, please substitute the following paragraph:

As illustrated in Fig. 4, the stress of the substrate with the multilayer reflection film in this comparative example was gradually changed with the a lapse of time and was not stabilized even after the a lapse of one year. It has been observed that, following the above-mentioned change, the peak wavelength was shifted for a long period of time. The reflectance after the a lapse of one year was decreased by 0.5% as compared with the value immediately after the deposition.